



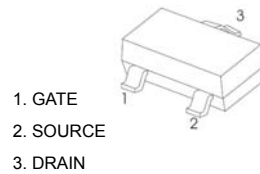
## FEATURES

- High density cell design for low  $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability

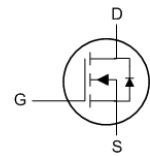
$V_{DS}$  100 V  
 $I_D$  1.5 A  
 $R_{DS(ON)}$  195m $\Omega$

D8HVV

### SOT-23



### Equivalent Circuit



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$

Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		$V_{DS}$	100		V
Gate-Source Voltage		$V_{GS}$	$\pm 20$		
Continuous Drain Current *1	$T_a=25^\circ\text{C}$	$I_D$	1.5	1.15	A
	$T_a=70^\circ\text{C}$		1.2	0.92	
Pulsed Drain Current *2		$I_{DM}$	6		
Avalanche Current *2		$I_{AS}$	6		
Single Avalanche Energy		$E_{AS}$	1.8		mJ
Power Dissipation *1	$T_a=25^\circ\text{C}$	$P_D$	1.25	0.73	W
	$T_a=70^\circ\text{C}$		0.8	0.47	
Thermal Resistance.Junction- to-Ambient *1 $t \leq 5$ sec		$R_{thJA}$	100		$^\circ\text{C/W}$
Steady State			170		
Thermal Resistance.Junction-to-Foot		$R_{thJF}$	55		
Junction Temperature		$T_J$	150		$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	-55 to 150		

\*1 Surface Mounted on 1" x 1" FR4 Board.

\*2 Pulse width limited by maximum junction temperature

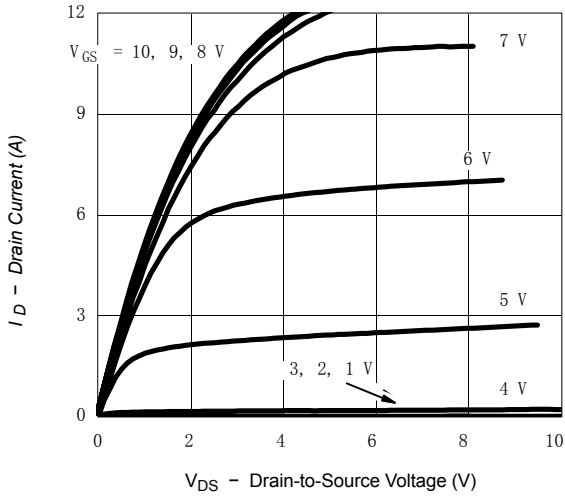
Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> =100V, V <sub>GS</sub> =0V, Ta=70°C			75	
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	2		4	V
On-State Drain Current *1	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 15 V, V <sub>GS</sub> = 10 V	6			A
Static Drain-Source On-Resistance *1	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =1.5A		195	250	mΩ
Forward Transconductance *1	g <sub>FS</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =1.5A		4		S
Gate Resistance	R <sub>g</sub>		0.5		2.4	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =50V, I <sub>D</sub> =1.5A		3.3	4	nC
Gate Source Charge	Q <sub>gs</sub>			0.47		
Gate Drain Charge	Q <sub>gd</sub>			1.45		
Turn-On DelayTime	t <sub>d(on)</sub>	I <sub>D</sub> =0.2A, V <sub>DS</sub> =50V, V <sub>GEN</sub> =10V R <sub>L</sub> =33Ω, R <sub>G</sub> =6Ω		7	11	ns
Turn-On Rise Time	t <sub>r</sub>			11	17	
Turn-Off DelayTime	t <sub>d(off)</sub>			9	15	
Turn-Off Fall Time	t <sub>f</sub>			10	15	
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 1.5A, di/dt= 100A/μs		50	100	
Maximum Body-Diode Continuous Current	I <sub>S</sub>				1.0	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.0A, V <sub>GS</sub> =0V		0.8	1.2	V

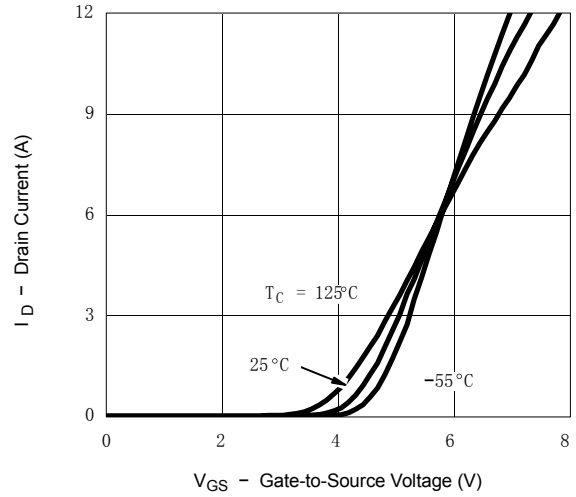
\*1 Pulse test: PW ≤ 300us duty cycle ≤ 2%.

RATING AND CHARACTERISTIC CURVES

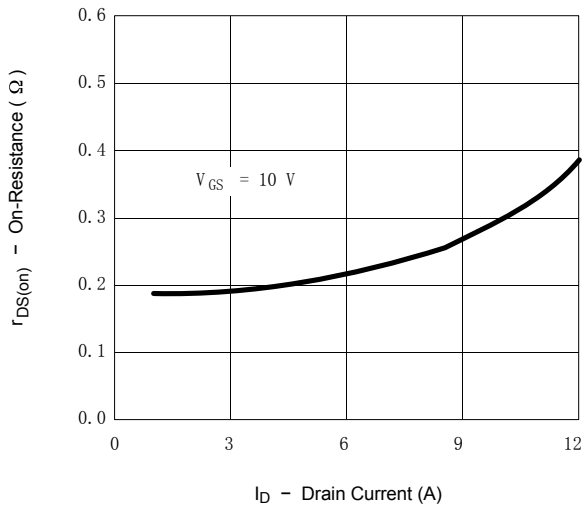
**Output Characteristics**



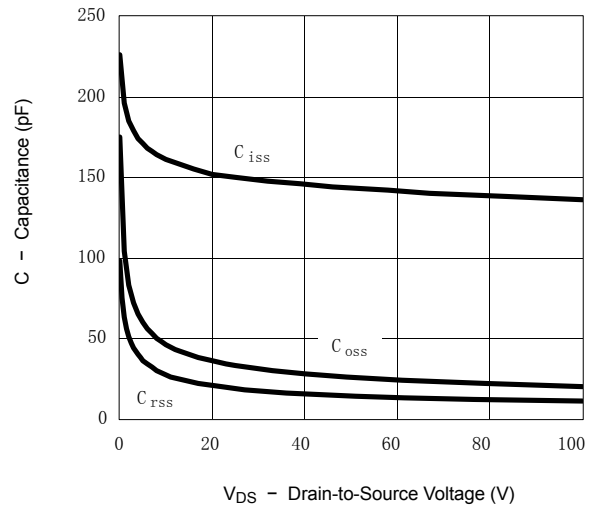
**Transfer Characteristics**



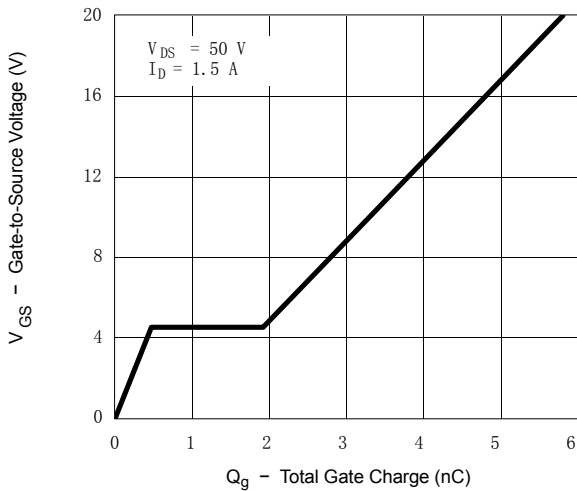
**On-Resistance vs. Drain Current**



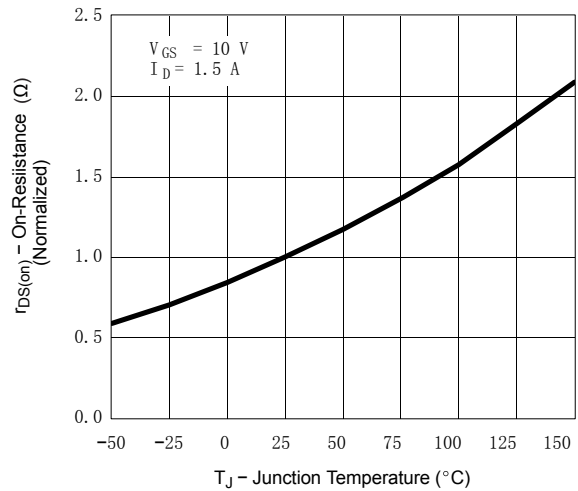
**Capacitance**



**Gate Charge**

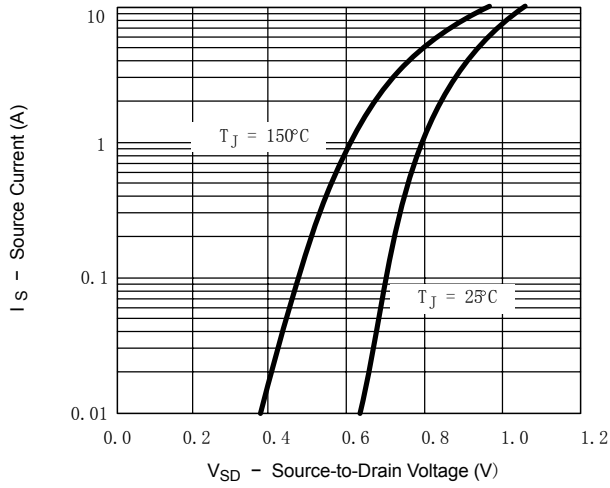


**On-Resistance vs. Junction Temperature**

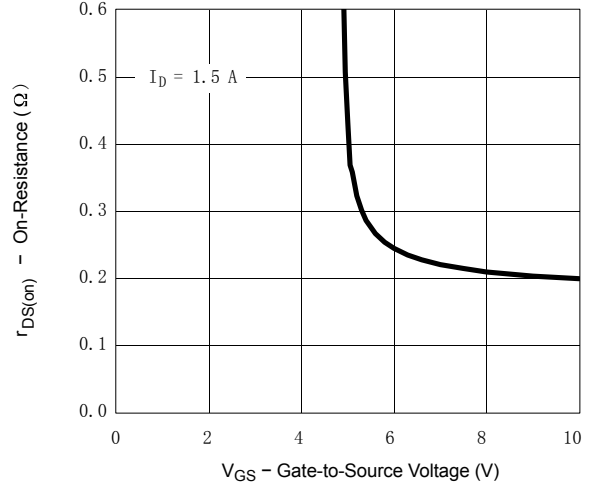


RATING AND CHARACTERISTIC CURVES

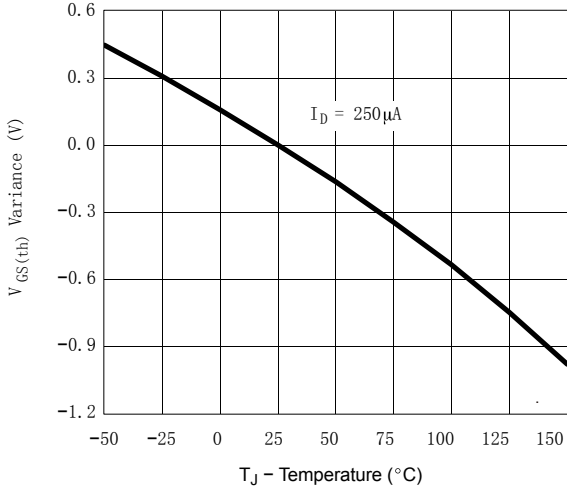
Source-Drain Diode Forward Voltage



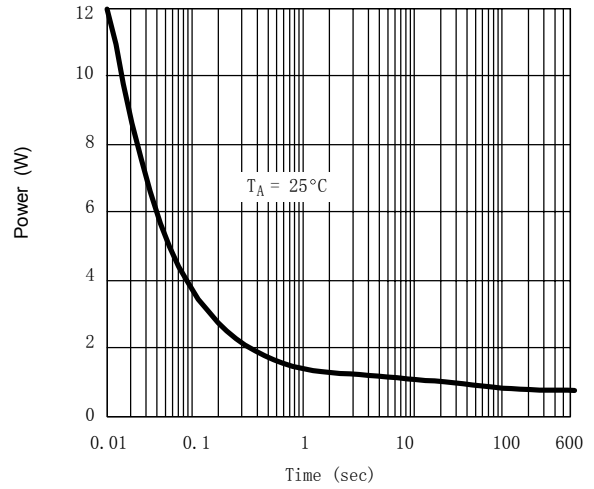
On-Resistance vs. Gate-to-Source Voltage



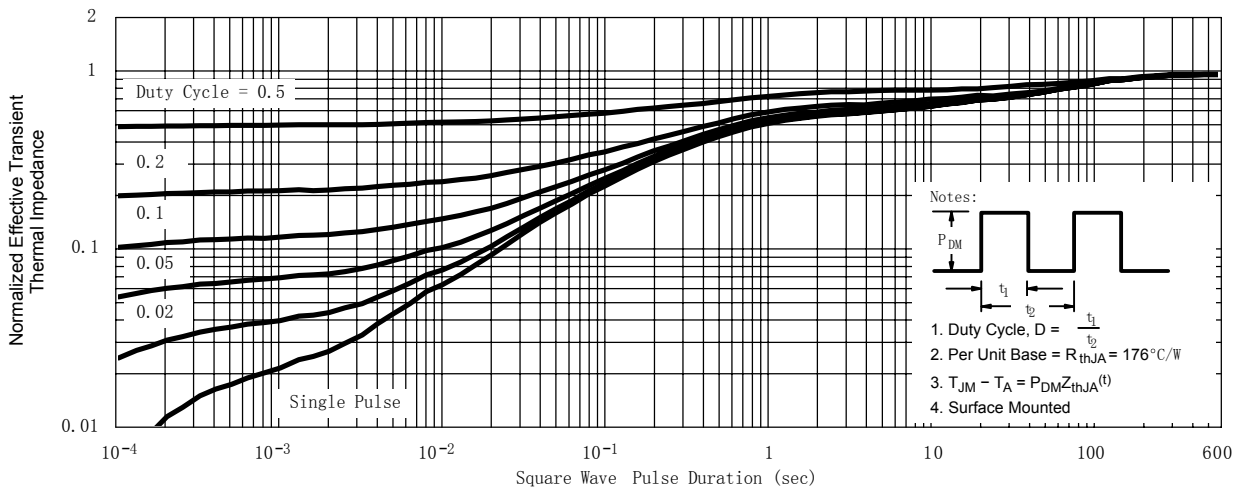
Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient



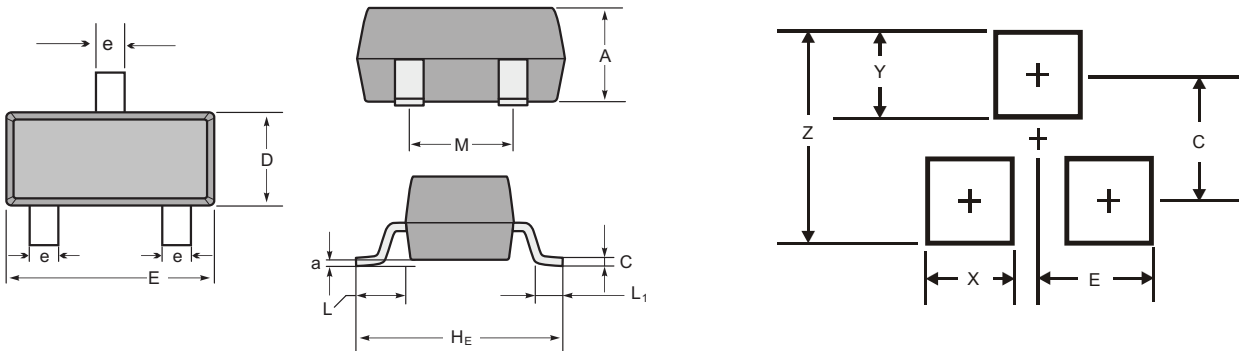
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ )(Liquid us)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_P$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23



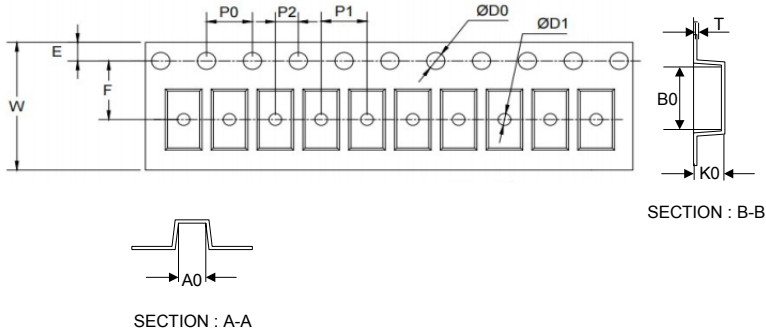
SOT-23 mechanical data

UNIT	A	C	D	E	HE	e	M	L	L1	a	
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

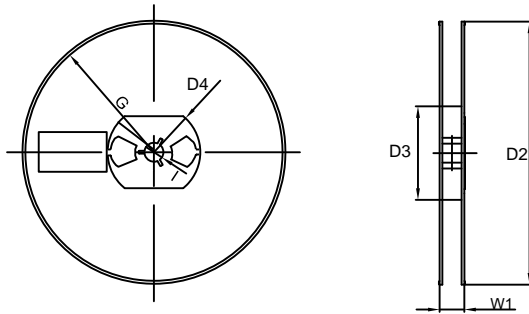
Tape & reel specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	1.55±0.10
D1	1.05±0.10
E	1.55±0.10
F	3.60±0.10
W	8.00±0.10
A0	3.80±0.20
B0	3.25±0.20
K0	1.45±0.10
T	0.25±0.05
D2	178.0±3.0
D3	55Min.
D4	R24.0±3.0
G	R82.0±3.0
I	13.0±2.0
W1	11.0±3.0

7" Reel



Quantity: 3000PCS